

REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a full and complete response to the Official Action dated July 26, 2005. In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

Status of the Claims

Claims 1-15 are under consideration in this application. Claim 6 is being amended and Claim 15 is being added, as set forth in the above marked-up presentation of the claim amendments.

All the amendments to the claims are supported by the specification. Applicants hereby submit that no new matter is being introduced into the application through the submission of this response.

Formal Rejection

Claim 6 was rejected under 35 U.S.C. § 112 second paragraph, for being indefinite. As set forth above, claim 6 has been amended in accordance with the Examiner's requirements.

Prior Art Rejections

Claim 6 and 12 were rejected under 35 U.S.C. § 103 as being unpatentable over Hartemann et al. (USP 4,515,016) in view of Tavkhelidze et al. (USP 6,720,704).

In addition, claim 7, 8, 13 and 14 were rejected under 35 U.S.C. § 103 as being unpatentable over Hartemann and Tavkhelidze et al., and further in view of Kasahara et al. (US Application No. 2001/0028203).

Further, claims 9, 10 and 11 were rejected under 35 U.S.C. § 103 as being unpatentable over Hartemann and Tavkhelidze et al., and further in view of what the Examiner describes as "ordinary skill in the art."

The present invention as now recited in claim 6 is directed to avibrational power generation device vibrator comprising first and second electrodes constituting a first capacitance; a vibrator provided with the first electrodes; a vibrator pedestal for fixing the vibrator onto an electrode base; and an electrode terminal respectively connected to the first and second electrodes and performing an input and output of electric charges from the exterior. The vibrator includes a mass performing an undriven vibration and two oscillation

plates for supporting the mass. The oscillation plates sandwich and support a first surface of the mass and a second surface opposite thereto in a mutually parallel manner. The vibrator is operated through vibrational energy to change the capacitance by controlling a distance between the first and second electrodes.

The present invention as recited in claim 12 is directed to a vibrational power generation device vibrator comprising first and second electrodes constituting a first capacitance; a vibrator provided with the first and second electrodes; a vibrator pedestal for fixing the vibrator onto the electrode base; and an electrode terminal respectively connected to the first and second electrodes and performing an input and output of electric charges from the exterior. The vibrator includes $n-1$ masses performing undriven vibration and n oscillation plates for supporting the $n-1$ masses. The n oscillation plates sandwich and support first surfaces of the $n-1$ masses and second surfaces opposite thereto in a mutually parallel manner. The vibrator is operated through vibrational energy to change a capacitance by controlling a distance between the first and second electrodes provided at the vibrator.

The subject matter of the rejected claims 6-14 corresponds to a description of FIG. 1 in this application and also that of the allowed claim 1 corresponds to a description of FIG. 1. The present invention relates to a power generation device vibrator in which power generation is performed by undergoing a change in capacitance (between FIGs. 1 and 6 and FIG. 7). Since making the change difference of the capacitance large is required for the power generation, it becomes important for the electrodes 6 and 7 to be kept parallel to each other during vibration. If the electrode 6 is bent and contacts with the tip of the electrode 7, it is impossible to reduce more capacitance than that obtained in such a contact state.

By the structure in which "said oscillation plates (4, 5) sandwich and support a first surface of said mass (2) and a second surface opposite thereto in a mutually parallel manner", the vibrator is kept parallel during vibration. Therefore, since the present invention is constituted by "a vibrator provided with said first electrode" and "first and second electrodes constituting a first capacitance", the large change in the capacitance can be obtained from the vibrator oscillating parallel (see paragraphs [0016] and [0039]).

In contrast to the present invention, each of all references is an apparatus different in object from the power generation device vibrator of the present invention and does not disclose the above-mentioned problem and constitution that are peculiar to the present invention.

Hartemann et al merely relate to the elastic surface wave accelerometer, wherein the bending stress is detected for detecting the elastic surface wave (col. 2, lines 9-30 and 46-49). Since the accelerometer is one for measuring the bending, Hartemann et al cannot address the above problem solved by the present invention, i.e., "the vibrator is vibrated parallel in a large way (along with avoidance of contact of the electrodes)". The reason that the modification does not teach and suggest it is apparent also from the fact that Hartemann et al is different from the present invention in that Hartemann et al does not have "the vibrator provided with said first electrode" and "first and second electrodes constituting a first capacitance", as does the present invention.

Tavkhelidze et al (U.S. Patent No. 6,720,704) relate to an actuator. In Fig. 1, the controller 29 controls the field exerted on the actuator by controlling the distance between the electrodes 1 and 5. In addition, Tavkhelidze et al have no description corresponding to the description "oscillation plates sandwich and support a first surface of said mass and a second surface opposite thereto in a mutually parallel manner". Therefore, Tavkhelidze et al is very different from the present invention that performs the power generation by using the capacitance change due to the vibration of the vibrator.

Consequently, Hartemann et al with Tavkhelidze et al does not teach and suggest the problem of the present invention, and does not render each and every feature of the present invention obvious to one skilled in the art.

The Examiner cites Kasahara et al (U.S. Patent Application Publication No. 2001/0028203) as a secondary reference disclosing the contact prevention device described in the present claim 7 etc. However, Kasahara et al only relates to the electrostatic actuator, and thus does not disclose the stopper of the present invention. This secondary reference does not provide any teaching or suggestion to make up for the deficiencies in Hartemann et al and Tavkhelidze et al such that their combination can render the present invention obvious. Instead, the combination of all three references will still suffer from the same deficiencies described above with none of the features or advantages achieved by the present invention. The present invention as a whole is distinguishable and thereby allowable over the prior art.

Conclusion

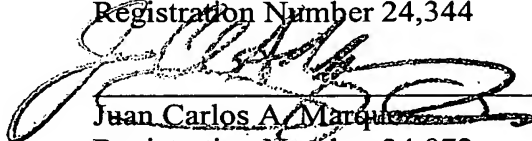
In view of all the above, clear and distinct differences as discussed exist between the present invention and the prior art references upon which the rejections in the Office Action rely, Applicant respectfully contends that the prior art references cannot anticipate the present

invention or render the present invention obvious. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

Favorable reconsideration of this application is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of the above-captioned application, the Examiner is invited to contact the Applicant's undersigned representative at the address and phone number indicated below.

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